

The Influence of Role Models on Students' Entrepreneurial Intentions

Jessica Kennedy, Judy Drennan, Patty Renfrow
and Bernadette Watson

Abstract

The Smart State initiative requires both improved education and training, particularly in technical fields, plus entrepreneurship to commercialise new ideas. In this study, we propose an entrepreneurial intentions model as a guide to examine the educational choices and entrepreneurial intentions of first-year University students, focusing on the effect of role models. A survey of over 1000 first-year University students revealed that the most enterprising students were choosing to study in the disciplines of information technology and business, economics and law, or selecting dual degree programs that include business. The role models most often identified for their choice of field of study were parents, followed by teachers and peers, with females identifying more role models than males. For entrepreneurship, students' role models were parents and peers, followed by famous persons and teachers. Males and females identified similar numbers of role models, but males found starting a business more desirable and more feasible, and reported higher entrepreneurial intention. The implications of these findings for Smart State policy are discussed.

The Influence of Role Models on Students' Entrepreneurial Intentions

Governments, both in Australia and overseas, have recognised the significance of entrepreneurship to economic prosperity and the importance of well-designed government programs to promote entrepreneurial activity (Australian Government 2001; Innovation Summit Implementation Group 2000; Queensland Department of State-Development 1999; Organization for Economic Cooperation and Development 1998). Indeed, the Communique of a recent National Innovation Summit convened by the Australian Government and the Business Council of Australia declared:

If [Australia is] to take the high road, a road of high growth based on the value of our intellectual capital, we need to stimulate, nurture and reward creativity and entrepreneurship (Minchen and Anderson 2000:1).

Acting on the Summit's findings, the Australian Government responded with a major policy initiative, *Backing Australia's Ability*, to encourage and support innovation and entrepreneurship (Australian Government 2001).

The Queensland Government recently unveiled a policy initiative to enable the State to meet the challenges of the global economy by competing in both traditional and emerging knowledge-intensive industries (Queensland Government 2002). This initiative, labelled the *Smart State*, has been supported by large public investments in developing science and technology infrastructure particularly in the fields of medical research and biotechnology. The *Smart State* policy entails the promotion of entrepreneurship and commercialisation of new ideas to capture the benefits of the knowledge developed. The policy also recognises the importance of building an innovative and entrepreneurial mindset among young people. To support these initiatives, government programs have been put in place to improve the education and training of young people to gain the necessary knowledge and skills required for a *Smart State*. This government focus highlights the need to better understand both the educational choices and the entrepreneurial intentions of young people.

While Australia is ranked highly in terms of the level of entrepreneurship, it does not possess a strong supportive culture of innovation that is required to translate new ideas into commercial ventures. Moreover the education systems have been criticised for not adequately exposing students to business and entrepreneurship (Hindle and Rushworth 2000). The achievement of *Smart State* objectives requires both scientific and technological creativity and the entrepreneurial skills to commercialise these innovations. Consequently, an understanding of the factors influencing educational choices and entrepreneurial intentions is essential if intervention strategies are to be put in place to increase the levels of innovation and entrepreneurship within Australia.

In this paper, we propose a model that maps the pathways between role models and entrepreneurial intentions and takes into account discipline course, as well as perceived desirability and feasibility of starting a business (see Figure 1). Research has shown that role models are particularly relevant to university students' choice of both academic discipline (Nauta and Kokaly 2001) and self-employment (Matthews and Moser 1996). As role models can be easily manipulated, they can serve as a valuable intervention strategy to influence students' choices.

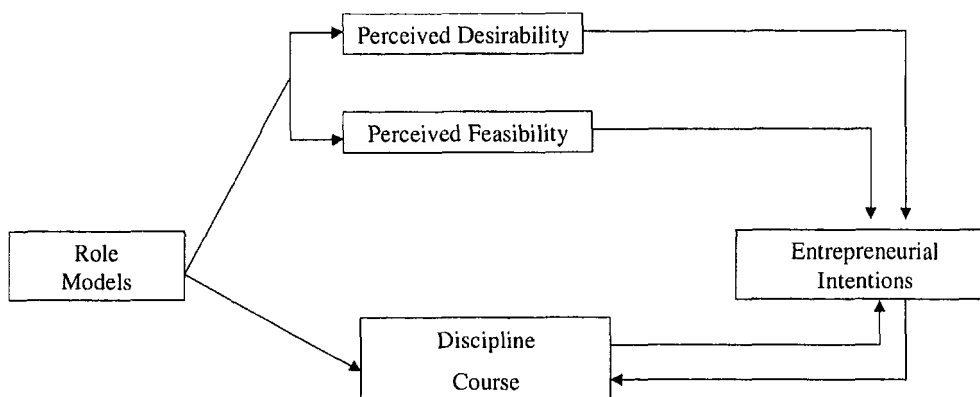


Figure 1 - Entrepreneurial intentions model

Entrepreneurial intentions

Entrepreneurial intentions models (Shapero 1975; Shapero and Sokol 1982; Bird 1988; Boyd and Vozikis 1994) posit that perceptions of both *the feasibility* and *desirability* of starting a business influence *intentions* to start a business. Compared with females, males generally perceive starting a business to be more desirable (Begley et al. 1997), more feasible (Kennedy and Drennan 2002) and have higher entrepreneurial intentions (Begley et al. 1997; Kourilsky and Walstad 1998). Role models influence entrepreneurial intentions through their impact on perceptions of the feasibility (Krueger and Dickson 1994) and desirability of starting a business (Shapero and Sokol 1982). Entrepreneurial activity is impeded in Australia by a lack of entrepreneurial role models (Hindle and Rushworth 2000).

Choice of academic discipline

University students can choose from a range of scientific and technological programs or more general programs in the Arts and Humanities. Despite the diversity of these programs, a commonality is the potential to use the qualification to set up a business. It may be that students with high entrepreneurial intentions tend to enrol in the business discipline, or pursue dual degrees to combine business with other fields of study, but to date there has been little research on their choice.

Situational factors related to choice of discipline would also be expected to influence entrepreneurial intentions. Students from some disciplines may expect to run a professional business, although they can choose to start a new business or purchase an existing business. Women may expect to experience some difficulty in balancing work and home roles, which can influence their choice of academic

discipline and their entrepreneurial intentions. For some disciplines, expectations of difficulty in finding employment may also impact on intentions to start a business.

Role Models

Role models are recognised as significant influences on career decision-making processes (Nauta and Kokaly 2001) that include both selection of academic discipline and self-employment options. Role models have been defined as those 'whose life and activities influenced the respondent in specific life decisions' (Basow and Howe 1980: 559), 'who are worthy of imitation in some area of life' (Pleiss and Feldhusen 1995: 163) or 'real or theoretical persons perceived as being ideal standards for emulation in one or a selected number of roles' (American Psychological Association, 1982: 150). Parents and other family members, peers, and teachers have been identified as possible role models. As such, they have been incorporated in the Influence of Role Model Scale (IRMS) (Basow and Howe 1979) and the Career Influence Inventory (CII) (Fisher and Stafford 1999). However, it may be that individuals not personally known, such as historical or famous figures, also constitute effective role models. As yet, little research has been conducted to determine the range of role models that influence life decisions (Nauta and Kokaly 2001). Consequently, this study investigates other potential role models beyond those included in the IRMS and the CII, and examines their impact on entrepreneurial intentions, which is an important focus of the *Smart State* initiative.

Numerous theories have been proposed to explain how role models influence career development (Nauta and Kokaly 2001; Hackett and Betz 1981), and this paper incorporates the notion of entrepreneurship as a career option. According to Social Learning Theory, individuals can learn by observing the behaviour of others, and noting the subsequent outcomes (Bandura 1977). The individual may then try to copy the observed behaviour to obtain similar benefits. Alternatively, Social Cognitive Career Theory (Lent, Brown and Hackett 1994) proposes that role models indirectly affect career choices through self-efficacy, interests and expectations of outcomes, suggesting that the influencers need not necessarily be actively involved in the career themselves. For females in particular, role models may demonstrate how to cope with the conflicting demands of work and home roles (Nauta and Kokaly 2001).

Role models and discipline choice

Role models constitute an important influence on students' choices of specific study discipline (Hackett, Esposito and O'Halloran 1989; Nauta and Kokaly 2001). Nauta and her colleagues asked university students in the U.S. to identify the single role model most influential in their academic and career decisions. They found that parents and peers were most influential, followed by teachers, coaches, media and sports figures. Both males and females reported being more influenced by same-

sex role models. Research on female university students in the U.S. by Hackett, Esposito and O'Halloran (1989), supports the view that female role model influences are strong predictors of female career choices, but their findings also document that other sources of role models are important, particularly in choosing non-traditional occupations. Other research (Dryler 1998) has focused on parents as the most important role models. Results suggest that students tend to choose education or career paths that reflect the occupation of their parents. This finding was stronger for sons and fathers, than for daughters and mothers.

Additional evidence in support of the effect of role models is evident in the way that interventions can influence career decisions. Inviting people who are potential role models to the classroom has been shown to improve students' attitudes towards careers in engineering, science and mathematics (Evans and Whigham 1995).

Role models and entrepreneurial intentions

The decision to start a business is influenced not only by individual characteristics and social circumstances, but also by socialization (Starr and Fondas 1992; Minniti and Bygrave 1999). As part of that socialization, role models can play an important part in influencing entrepreneurship decisions (Minniti and Bygrave 1999). Parents are considered to be the major role models for entrepreneurs. Indeed, research suggests that the likelihood of starting a business is increased if parents actually owned their own business (Matthews and Moser 1996). However, role models may also include relatives, classmates, work peers, and observed strangers (Shapiro and Sokol 1982) as well as employers, teachers, or anyone the individual has had the opportunity to observe (Scherer et al. 1989). These other possible role models have been largely ignored in empirical research on entrepreneurship.

The feasibility of starting a business is influenced by feelings of self-efficacy, which in turn are increased by having role models (Krueger and Dickson 1993). Self-efficacy appears to increase as a result of vicarious learning whereby the observer learns how to differentiate between effective and non-effective behaviours (Hackett and Betz 1981). It enables individuals to feel that they can control a situation and thus they are more likely to see starting a business as a feasible course of action (Krueger and Dickson 1993).

Perceptions of the desirability of starting a business are also influenced by role models, including parents, peers, large numbers of credible examples in ethnic groups, classmates and colleagues (Shapiro and Sokol 1982). Individuals evaluate the overall attractiveness of a specific career by observing role model behaviour and the extent to which it is positively reinforced. This either encourages or discourages them from entering a similar career field (Betz and Hackett 1981).

The Study

In order to better understand entrepreneurial intentions, this study empirically tests some elements of the entrepreneurial intentions model. Specifically, the study surveys students enrolled in introductory courses at The University of Queensland to determine:

- whether students in different academic fields differ in their perceptions of entrepreneurship as a career
- which role models influence their perceptions of entrepreneurship as a career
- which role models influence their choice of academic field of study

Methodology

The survey consisted of a six-page, structured questionnaire. Students answered items that addressed their entrepreneurial intentions, perceived feasibility of starting a business, perceived desirability of starting a business, and their employment situation. Students also responded to items concerning their role models. Response options included five-point Likert scales and appropriate categorical and dichotomous scales. The items used in the questionnaire are listed in Table 1.

Table 1 - Questionnaire items for current study

Entrepreneurial intentions

Have you ever thought about starting your own business? (Never thought about it at all ... Seriously thought about it)

Estimate the likelihood that you'll start your own business in the next 5 years (Very unlikely ... very likely)

Estimate the likelihood that you'll start your own business in the next 10 years (Very unlikely ... very likely)

Perceived desirability

How attractive is it for you to start your own business? (very unattractive .. very attractive)

If you started your own business, how would you feel about doing it? (I'd hate doing it ..I'd love doing it)

If you started your own business, how tense would you be? (very tense .. very relaxed)

If you started your own business, how enthusiastic would you be? (very unenthusiastic ... very enthusiastic)

Perceived feasibility

How practical is it for you to start your own business? (not very practical ... very practical)

How hard do you think it would be to start your own business? (very hard .. very easy)

If you started your own business, what do you think your workload would be? (very high... low)

If you started your own business, how certain of success are you? (very certain of failing... very certain of success)

Do you know enough to start your own business? (know absolutely nothing. ...know everything)

Role Models

We are interested in those who have influenced your *chosen field of study here at UQ*. For each of the categories below, tick the box if you think someone in that category is (1) a role model, (2) a positive influence; and indicate whether they are (3) the same gender as you.

Category	Peer	Family member/ relative	Teacher/ advisor/ coach	Vocational visitor/ speaker at your school	Famous person/ character	Other? (Fill in details)
	Tick box if answer is yes.	Tick box if answer is yes.	Tick box if answer is yes.	Tick box if answer is yes.	Tick box if answer is yes.	Tick box if answer is yes.

(1) Role
Model?

(2) Positive
influence?

(3) Same
gender as
you?

We now want you to think about those role models who have influenced you about the possibility of *starting your own business* at some future time. For each of the categories below, tick the box if you think someone in that category is (1) a role model, (2) a positive influence; and indicate whether they are (3) the same gender as you.

Category	Peer	Family member/ relative	Teacher/ advisor/ coach	Vocational visitor/ speaker at your school	Famous person/ character	Other? (Fill in details)
	Tick box if answer is yes.	Tick box if answer is yes.	Tick box if answer is yes,	Tick box if answer is yes.	Tick box if answer is yes.	Tick box if answer is yes.

(1) Role
Model?

(2) Positive
influence?

(3) Same
gender as
you?

Students attending major first-year classes from six out of seven Faculties at the university in the first and second semesters, 2002, completed the questionnaires. With the approval and cooperation of lecturers, the experimenters distributed the questionnaire during class sessions. Most students completed and returned them during the sessions. Participation was voluntary and 1075 students completed and submitted the questionnaire, resulting in a response rate of over 60%.

Students completing the questionnaire indicated the degree program in which they were enrolled. Each degree program was converted into discipline of enrolment. Students were enrolled in 21 different discipline combinations. To facilitate analysis, these categories were reduced by receding all students into the disciplines that they listed first in their statement of the degree program of enrolment (eg Arts/Management would be receded as Arts, Engineering/Law would be Engineering). The numbers of students from each discipline who completed the questionnaire are shown in Table 2.

Table 2 - Student respondents by main discipline and gender

	Female	Male	Total
Arts	83	23	106
BEL	190	166	356
Social Science	60	21	81
Engineering	18	70	88
Science	167	80	247
Health Science	93	27	120
IT	12	24	36
TOTAL	623	411	1034

Entrepreneurial Intentions: Three questions comprised the measure of entrepreneurial intentions (Davidsson 1995). The Cronbach alpha reliability for this scale was 0.80.

Perceived Feasibility: Five questions adapted from Krueger (1993) and Krueger, Reilly and Carsrud (2000) comprised the measure of perceived feasibility. The Cronbach Alpha reliability for this scale was 0.67.

Perceived Desirability: Four questions adapted from Krueger (1993) and Krueger, Reilly and Carsrud (2000) comprised the measure of perceived desirability. The Cronbach alpha reliability for this scale was 0.69.

Role Models: Role models were defined as follows: *Role models are people, who either by doing something or by being admirable to you in one or more ways, have had an impact on the academic and career decisions you are making in your life. Role models may be people you know personally, or they may be people you simply know of who have had an impact on you* (Nauta and Kokaly 2001).

Students rated whether they had role models who influenced their chosen field of study at UQ and the possibility of starting their own business. Categories of peer, family member/relative, teacher/advisor/coach, vocational visitor/speaker at your school, famous person/character and other were provided. Students indicated whether the influence was positive or negative, and whether the role model was of the same gender.

Results

Perceptions of entrepreneurship by field of study

Table 3 shows the mean level of entrepreneurial intentions of students in each discipline surveyed. The IT and business students reported the highest mean level of entrepreneurial intentions.

Table 3 - Mean entrepreneurial desirability, feasibility and intentions by main discipline

Main discipline	Desirability Mean (N)	Feasibility Mean (N)	Intentions Mean (N)
Arts	3.7987 (106)	2.4825 (105)	2.9029 (103)
BEL	3.9437 (355)	2.,7495 (350)	3.,2225 (349)
Social Science	3.6626 (81)	2.5274 (79)	2.,5359 (79)
Engineering	3.4432 (88)	2.,4713 (87)	2.,6030 (89)
Science	3.5273 (244)	2.,4601 (242)	2.,6030 (241)
Health Science	3.5333 (120)	2.4944 (120)	2.6328 (118)
IT	3.9009 (37)	2.,6381 (35)	3.4054 (37)
Total	3.7161(1031)	2.5783(1018)	2.8737(1016)

In order to examine whether students from the seven disciplines differed significantly in their intention to start their own business, a one-way analysis of variance (ANOVA) was conducted with the university discipline as the between subjects independent variable (7 levels) and the students' level of intention as the dependent variable. There was a significant main effect for discipline ($F(7, 1041) = 14.21, p < .001$). Tukey post-hoc tests were used to examine differences between the cell means. The post hoc test revealed that while students in both the IT and business programs did not significantly differ in their reported strength of intention to commence their own business, compared to social science, engineering, science and health sciences they reported significantly higher intentions to start their own business.

In order to investigate these discipline differences in entrepreneurial intentions, we examined cross-discipline enrolments. This data indicated that students who were interested in starting a business were more likely to be enrolled in dual degrees with the business discipline. This held for arts, social science, engineering, science, and health science students.

In addition, results indicated that gender was significantly related to interest in entrepreneurship. Specifically, males reported a higher level than females of desirability (3.8 vs. 3.7, $p < .05$), feasibility (2.7 vs. 2.5, $p < .001$) and intentions (3.0 vs. 2.8, $p < .001$).

Role models and choice of academic discipline

Within all faculties, students most often identified family members as role models with peers and teachers also frequently nominated (Table 4). Students in arts, science and IT identified teachers as role models more frequently than those in business, engineering, health sciences and social sciences. Vocational visitors/speakers, on the whole, did not figure prominently as role models, particularly for engineering and IT. Arts students were more likely than students in other disciplines to nominate famous persons as role models.

An analysis of 'other' role models showed that those who influenced students with regard to their choice of course discipline included: professionals such as dentists, doctors, occupational therapists, and CSIRO scientists; adult family friends and business friends; and their bosses. Similar types of role models were proffered in terms of those who influenced students to consider starting their own business. These included: small business owners such as a local business owner, an aquarium shop owner; bosses; and family friends.

With respect to academic and career decisions, the figures in Table 5 show that females identified more role models than males. The most frequently identified role models for both male and female students were family members, teachers and peers. Interestingly, compared to female students, male students were more likely to identify famous persons as role models for their choice of study field.

Role models and entrepreneurial intentions

With respect to starting up their own business, Table 6 shows that all students reported a strong influence from family members. Students from the Social Science and IT disciplines rated peers as important influences in their decision to start their own business. Comparing the results reported in Table 4 for the presence of role models for field of academic study with that of entrepreneurial intentions, it can be seen that family members are the most frequently identified for both. For choice of discipline, the second most frequently identified role models were teachers followed by peers. In contrast, the second most frequently identified role models for entrepreneurial intentions were peers, followed by famous persons.

Table 4 - Role models for choice of academic discipline

	Peer	Family member	Teacher	Vocational visitor/ speaker	Famous person/ character	Other
Discipline	No (%)	No (%)	No (%)	No (%)	No (%)	No (%)
Arts	41 (38.7%)	70 (66%)	47 (44.3%)	18 (17%)	42 (39.6%)	6 (5.7%)
Business, Economics and Law	130 (36.4%)	236 (66.1%)	131 (36.7%)	57 (16%)	112 (31.4%)	20 (5.6%)
Social Science	37 (45.7%)	43 (53.1%)	26 (32.1%)	13 (16%)	22 (27.2%)	10 (12.3%)
Engineering	18 (20.2%)	46 (51.7%)	32 (36.4%)	6 (6.7%)	17 (19.1%)	6 (6.7%)
Science	100 (40.5%)	167 (67.6%)	118 (47.8%)	46 (18.6%)	69 (27.9%)	22 (8.9%)
Health Science	51 (42.5%)	88 (73.3%)	49 (40.8%)	22 (18.3%)	14 (11.7%)	13 (10.8%)
IT	18 (48.6%)	21 (56.8%)	18 (48.6%)	4 (10.8%)	8 (21.6%)	1 (2.7%)
TOTAL	395 (38.1%)	671 (64.7%)	421 (40.6%)	166 (16%)	317 (30.6%)	69 (6.7%)

Table 5 - Role models for choice of academic discipline by gender

	Peer	Family member	Teacher	Vocational visitor/ speaker	Famous person/ character	Other
	No (%)	No (%)	No (%)	No (%)	No (%)	No (%)
Female	261 (41.2%)	435 (68.6%)	266 (42%)	110 (17.4%)	152 (24%)	45 (7.1%)
Male	140 (33.0%)	248 (58.5%)	162 (38.3%)	58 (13.7%)	137 (32.3%)	32 (7.5%)

Table 6 - Role models for entrepreneurship interest by academic discipline

	Peer	Family member	Teacher	Vocational visitor/ speaker	Famous person/ character	Other
Discipline	No (%)	No (%)	No (%)	No (%)	No (%)	No (%)
Arts	23 (21.7%)	47 (44.3%)	11 (10.4%)	13 (12.3%)	20 (18.9%)	8 (7.5%)
Business, Economics and Law	83 (23.2%)	179 (50.1%)	71 (19.9%)	40 (11.2%)	76 (21.3%)	17 (4.8%)
Social Science	24 (29.6%)	34 (42%)	11 (13.6%)	8 (9.9%)	7 (8.6%)	5 (6.2%)
Engineering	11 (12.4%)	31 (34.8%)	11 (12.4%)	5 (5.6%)	7 (7.9%)	3 (3.4%)
Science	44 (17.8%)	89 (36%)	34 (13.8%)	35 (14.2%)	46 (18.6%)	12 (4.9%)
Health Science	24 (20%)	53 (44.2%)	24 (20%)	9 (7.5%)	10 (8.3%)	6 (5%)
IT	10 (27%)	15 (40.5%)	7 (18.9%)	1 (2.7%)	5 (13.5%)	0 (0%)
TOTAL	219 (21.1%)	448 (43.2%)	169 (16.3%)	111 (10.7%)	171 (16.5%)	51 (4.9%)

Table 7 reveals that both male and female students reported family members as being highly influential in their choice of considering entrepreneurship. While all students reported that peers were also important in this area, compared to females, more male students identified famous persons as being an important influence towards their decision to consider starting their own business.

Students who reported no role models had significantly lower perceptions of both the desirability (ANOVA, $F=46.49$, $\text{sig}<.000$) and feasibility (ANOVA, $F=34.23$, $\text{sig}<.000$) of starting a business than those with role models. As predicted by the model (see Figure 1), perceptions of feasibility and desirability were related to intentions to start a business (regression, $F=533.35$, $\text{sig}<.000$).

Table 7 - Role models for entrepreneurship interest by gender

	Peer	Family member	Teacher	Vocational visitor/ speaker	Famous person/ character	Other
	No (%)	No (%)	No (%)	No (%)	No (%)	No (%)
Female	129 (20.3%)	280 (44.2%)	96 (15.1%)	72 (11.4%)	89 (14%)	32 (5%)
Male	97 (22.9%)	177 (41.7%)	76 (17.9%)	43 (10.1%)	89 (21%)	18 (4.2%)

Discussion

In this paper, we explored several research questions addressing students' entrepreneurial intentions, their choice of field of study and the influence of role models with a view to informing policy directions for a *Smart State*. Our analysis revealed that students' choice of academic discipline is related to their intentions to start their own business and that role models are an important factor influencing these intentions.

Specifically our first question addressed whether students' academic discipline is related to their perceptions of entrepreneurship as a career. As might be expected, the results revealed that students pursuing business and IT programs reported significantly higher levels of intentions to start their own business. In addition, the results showed that students enrolled in dual degree programs, which included business courses, rated their intentions more highly than those enrolled in single non-business degree programs or in non-business dual degree programs. It is not clear whether students' entrepreneurial intentions influence their field of study or whether the field of study affects their perceptions of entrepreneurship as a career. However, given that the respondents were enrolled in first-year introductory courses, it can be argued that the choice of discipline is more likely to be a reflection of their interest in entrepreneurship.

The study examined the influence of role models on students' perceptions of entrepreneurship as a career. Students with role models perceived starting a business to be more desirable and feasible than those without role models. The most frequently identified role models were family members, followed by peers, famous persons and teachers, while vocational visitors were least commonly identified. Although this study did not explore whether role models were themselves entrepreneurs, the nomination of both teachers and peers as role models suggests that it is not necessary to be a business owner to be considered a role model. Further, we examined the identity of role models that influenced students' field of study choice, finding that family members were most frequently nominated by students, followed by teachers and then peers. Contrary to expectations, students did not frequently nominate

vocational visitors and speakers as role models. In fact, students nominated famous persons more frequently than vocational visitors as influential to their chosen field of study. This result was particularly pronounced for Arts students.

Although there are some gender differences in students' chosen field of study and in their identification of role models, the greatest gender differences emerged in perceptions of entrepreneurship. As reported earlier, males reported significantly higher levels of perceived feasibility and desirability of starting a business than did females. In addition, males also reported significantly higher levels of intention to start a business. These results are in line with previous research findings (Davidsson 1995; Begley et al. 1997) and call attention to the fact that women lag behind men in their entrepreneurial interest.

Developing an entrepreneurial mindset amongst young people requires appropriate educational policies, programs and strategies for which our findings have important implications. For example, given that those with high entrepreneurial intentions are studying in business programs, relevant topics such as business start-ups and new venture development as well as more general management topics should be included. Dual degree programs could also be more heavily promoted to encourage students to broaden career options that may include entrepreneurship. The importance of role models on university students' study and career decisions should also be recognised and more attention given to promoting individuals who might serve as entrepreneurship role models. This emphasis of university curriculum does not lessen the importance of promoting entrepreneurship within the secondary school curriculum. For example, our results highlight the necessity to consider a broader range of potential role models and to re-evaluate the investment of substantial resources into school visitor programs, in particular the ways in which vocational visitors are used. Educational programs should also address the under-representation of women in entrepreneurship by developing programs at both secondary and tertiary levels that specifically target young women. These strategies may include the encouragement of dual degrees (such as arts with business), student interactions with successful businesswomen, and activities that build entrepreneurial skills.

The importance of entrepreneurship to economic growth and prosperity is well recognized by governments. Initiatives such as the Australian Government's *Backing Australia's Ability* and the Queensland Government's *Smart State* are significant examples of governments taking a leading role in fostering entrepreneurship and creating an entrepreneurial culture. Our research provides the basis for a better understanding of factors influencing the entrepreneurial intentions of young people which may assist policy makers in their efforts to develop an entrepreneurial culture within Australia.

References

- American Psychological Assoc. 1982, *The Thesaurus of Psychological Index Terms*, Washington DC, APA.
- Australian Government. 2001, *Backing Australia's Ability: An Innovation Action Plan for the Future*, Canberra, AGPS.
- Bandura, A. 1977, *Social Learning Theory*, Englewood Cliffs, NJ, Prentice-Hall.
- Basow, S. A. and Howe, K. G. 1979, 'Model influence on career choices of college students,' *Vocational-Guidance-Quarterly*, 27.3, 239-243.
- Basow, S, A, and Howe, K. G. 1980, 'Role-model influence: Effects of sex and sex-role attitude in college students', *Psychology of Women Quarterly* 4, 558-572.
- Begley, T. M., Rab, A. Zamora, E. and Nanayakkara, G. 1997, 'The relationship between socio-cultural dimensions and interest in starting a business: A multi-country study', *Frontiers of Entrepreneurship Research*, Wellesley MA, Babson College, 156-167.
- Betz, N. E. and Hackett, G. 1981, 'The relationship of career-related self-efficacy expectations to perceived career options in college men and women', *Journal of Counseling Psychology* 28. 5, 399-410.
- Bird, B. 1988, 'Implementing entrepreneurial ideas: The case for intention', *Academy of Management Review*, 13.3, 442-453.
- Boyd, N. G. and Vozikis, G. S. (1994), 'The influence of self efficacy on the development of entrepreneurial intentions and actions,' *Entrepreneurship: Theory and Practice* Summer, 63-77.
- Davidsson, P. 1995, *Determinants of entrepreneurial intentions*, RENT IX Workshop, Piacenza, Italy.
- Dryler, H. 1998, 'Parental role models, gender and choice,' *British Journal of Sociology* 49, 375-398.
- Evans, M. A. and Whigham, M. 1995, 'The effect of a role model project upon the attitudes of ninth-grade science students,' *Journal of Research in Science Teaching*, 32, 195-204.
- Fisher, T. A. and Stafford, M. E. 1999, 'Reliability and validity of the career influence inventory: A pilot study', *Journal of Career Assessment*, 7.2, 187-202.
- Hackett, G, and Betz, N. 1981, 'A self-efficacy approach to the career development of women,' *Journal of Vocational Behavior*, 18, 326-339.
- Hackett, G., Esposito, D. and O'Halloran, M, S. 1989, 'The relationship of role model influences to the career salience and educational career plans of college women,' *Journal of Vocational Behavior*, 35.2, 164-180.
- Hindle, K. and Rushworth, S. 2000, *Global Entrepreneurship Monitor. Australia 2000*, Hawthorne, Victoria, Swinburne University of Technology.
- Innovation Summit Implementation Group. 2000, *Innovation: Unlocking the Future*, Goanna Print.
- Kennedy, J. and Drennan, J. 2002, 'Effects of enterprise education on perceptions of entrepreneurship: A study of Queensland secondary school students,' *15th SEAAZ Conference, Adelaide, 22-24 September*.
- Kourilsky, M, and Walstad, W. B. 1998, 'Entrepreneurship and female youth: Knowledge, attitudes, gender differences, and educational practices,' *Journal of Business Venturing* 13, 77-88.
- Krueger, N. 1993, 'The impact of prior entrepreneurial exposure on perceptions of new venture feasibility and desirability,' *Entrepreneurship: Theory and Practice*, 18.31, 5-21.
- Krueger, N. and Dickson, P. R. 1994, 'How believing in ourselves increases risk taking: Perceived self efficacy and opportunity recognition,' *Decision Sciences*, 25.3, 385-400.
- Krueger, N., Reilly, M. D. and Carsrud, A. L. 2000, 'Competing models of entrepreneurial intentions', *Journal of Business Venturing*, 15, 411-432.
- Krueger, N. F. and Dickson, P.R. 1993, 'Perceived self efficacy and perceptions of opportunity and threat,' *Psychological Reports*, 72, 1235-1240.
- Lent, R. W., Brown, S. D. and Hackett, G. 1994, 'Toward a unifying social cognitive theory of career and academic interest, choice, and performance,' *Journal of Vocational Behavior*, 45, 79-122.

- Matthews, C. H. and Moser, S. 1996, 'A longitudinal investigation of the impact of family background and gender on interest in small firm ownership,' *Journal of Small Business Management*, 34,2, 29.
- Minchen, N. and Anderson, C. 2000, Final Summit *Communique*, Melbourne, National Innovation Summit.
- Minniti, M. and Bygrave, W. 1999, The microfoundations of entrepreneurship,' *Entrepreneurship: Theory and Practice*, 23. 4, 41-52.
- Nauta, M. M. and Kokaly, M. L. 2001, 'Assessing role model influences on students' academic and vocational decisions,' *Journal of Career Assessment*, 9. 1, 81-99.
- Organization for Economic Cooperation and Development 1998, *Fostering Entrepreneurship - Policy Brief #9*, Paris.
- Pleiss, M. K. and Feldhusen, J. F. 1995, 'Mentors, role models, and heroes in the lives of gifted children,' *Educational Psychologist*, 30, 159-169.
- Queensland Government 2002, 'The Future is Here,' <www.thepremier.qld.gov.au/pdf/the_future_is_here.pdf> December 16, 2002.
- Queensland Department of State Development 1999, *Innovation - Queensland's Future*, Brisbane, Department of State Development.
- Scherer, R. F., Adams, J. S., Carley, S. S. and Wiebe, F. A. 1989, 'Role model performance effects on development of entrepreneurial career preference,' *Entrepreneurship: Theory and Practice*, Spring, 53-71.
- Shapero, A. 1975, The displaced, uncomfortable entrepreneur,' *Psychology Today*, 9, Nov., 83-88.
- Shapero, A. and Sokol, L., 1982, The social dimensions of entrepreneurship, *Encyclopedia of Entrepreneurship*, eds. C. A. Kent, D. L. Sexton and K. H. Vesper, Englewood Cliffs, N. J. Prentice Hall, 72-90.
- Starr, J. A. and Fondas, N. 1992, 'A model of entrepreneurial socialization and organization formation,' *Entrepreneurship: Theory and Practice*, 17.1, 67-76.